

1 1. A toilet comprising

2 an upwardly open bowl having an opening through which the products of human

3 elimination are received,

4 a seat mounted on said bowl and having an opening generally aligned with said

5 bowl,

6 said seat, said bowl and portions of the body of a person sitting on the seat, forming

7 a chamber, and

8 a malodor control system comprising

9 means for defining a fluid flow path within said seat, said flow path having

10 an inlet opening from the chamber thus formed to said flow path, and

11 an air outlet through which air is discharged from the flow path to the exterior

12 of said seat,

13 characterized by

14 a water spray nozzle disposed in said fluid flow path between inlet opening and said

15 air outlet,

16 whereby water discharged from said spray nozzle will induce fouled air from the

17 bowl into said flow path, and malodor will be absorbed by the water spray and air

18 substantially free of stench will be discharged through said air outlet, and

19 further characterized in that

20 the fluid flow path has a water discharge opening from a lower portion of the flow

21 path into the upwardly open bowl,

 whereby water from the spray nozzle is returned to the bowl.

1 2. A toilet as in claim 1 further characterized by
2 an entrainment separator, disposed in said flow path and spaced downstream from
3 said nozzle, for precipitating water from air flowing through said flow path, and
4 also characterized in that
5 the water discharge opening is downstream of said entrainment separator.

1 3. A toilet as in claim 2, further characterized by
2 an air freshener unit disposed in said flow path down stream of said entrainment
3 separator.

1 4. A toilet as in claim 2 having
2 means for mounting said seat for pivotal movement between a down position in
3 which the seat is resting on said bowl and an up position in which the seat is swung
4 rearwardly of the bowl opening, and
5 further characterized by
6 means for supplying water to said nozzle, including
7 a flexible water line connecting a rear portion of the seat to a fixed source of
8 pressurized water.

1 5. A toilet as in claim 4 further characterized in that
2 the means for supplying water include
3 valve means mounted on said seat for controlling flow of water to said nozzle.

1 6. A toilet as in claim 5 further characterized in that
2 the seat has water a water inlet passage and a water discharge passage leading to the
3 spray nozzle, and
4 the valve means include a flow controlling valve member mounted in said seat
5 intermediate said water inlet and discharge passages.

1 7. A toilet as in claim 4, wherein
2 the means for mounting the seat include a bracket secured to a rear portion of the
3 seat, and
4 further characterized in that
5 said bracket has an extension aligned with the axis of pivotal movement and
6 projecting laterally from the seat, and
7 the means for supplying water include
8 a passageway extending lengthwise of said bracket extension and
9 said flexible tube is secured to said extension and in fluid communication with the
10 lengthwise extending passageway.

1 8. A toilet as in claim 7 further characterized in that
2 the means for supplying water include
3 valve means mounted on said seat and having an open position in which water
4 flows to the nozzle and a closed position in which flow of water to the nozzle is shut off, and
5 manually operable means, disposed at a rear lateral position relative to said seat, for

6 shifting said valve means between its open and closed positions.

1 9. A toilet as in claim 2 further characterized in that
2 the cross sectional area of said fluid flow path, immediately downstream of the
3 nozzle approximates at least, about 6.25 square inches.

1 10. A toilet comprising
2 an upwardly open bowl having a horizontal rim peripherally of its opening through
3 which the products of human elimination received,
4 a hollow seat mounted on said bowl and having an opening generally aligned with
5 said bowl,
6 said seat, said bowl and portions of the body of a person sitting on the seat, forming
7 a chamber, and
8 a malodor control system comprising
9 a pair of water spray nozzles disposed within the hollow seat, respectively, on
10 opposite lateral sides thereof,
11 inlet means formed in said hollow seat, upstream of said nozzles, for placing the
12 interior of the seat into communication with the chamber thus formed upstream of said
13 spray nozzles,
14 an air outlet means formed in said seat downstream of said spray nozzles, for
15 placing its hollow interior in communication with ambient air exteriorly of said chamber,
16 water discharge means formed in a bottom wall portion of the seat, downstream of

17 the nozzles for placing its hollow interior in communication with said chamber to return
18 water from the spray nozzles into said bowl.

1 11. A toilet as in claim 10 further comprising
2 an entrainment separator disposed downstream of each nozzle and upstream of the
3 air discharge means and also upstream of the water discharge means.

1 12. A toilet as in claim 11 further characterized in that
2 interior cross sectional area of the hollow seat, immediately downstream of the
3 nozzles at least approximates about 6.25 square inches.

1 13. A toilet as in claim 11 further comprising
2 an air freshener unit disposed intermediate each entrainment separator and the air
3 discharge means and the water discharge means.

1 14. A toilet as in claim 13 further comprising
2 means for mounting one end of said seat for pivotal movement between a down
3 position in which the seat is resting on said bowl and an up position in which the seat is
4 swung rearwardly of the bowl opening, and wherein
5 the nozzles are each disposed to discharge a water spray toward the pivotally
6 mounted end of the seat,
7 the water discharge means comprise an opening formed in the bottom wall of the

8 seat at the pivotally mounted end thereof, and
9 the upper surface of the bottom wall of the seat is sloped downwardly from said
10 spray nozzles to said water discharge means to assure drainage of water from the seat.

1 15. A toilet as in claim 14 further characterized in that
2 a rear portion of the seat overlies the bowl opening, and
3 the bottom wall of the seat has a tubular portion projecting downwardly from the
4 overlying portion of the seat and defining the hole of the water discharge means.

1 16. A toilet as in claim 13 wherein
2 the seat is compositely formed by a lower portion and an upper portion removably
3 secured to the lower portion, and
4 the air freshener units are replaceable when the upper seat portion is removed from
5 the lower seat portion.

1 17. A toilet as in claim 11 wherein the
2 the seat is compositely formed by a lower portion and an upper portion removably
3 secured to the lower portion, and further comprising
4 means, connected to the lower seat portion, for mounting said seat for pivotal
5 movement between a down position in which the seat is resting on said bowl and an up
6 position in which the seat is swung rearwardly of the bowl opening, and
7 further wherein

8 the nozzles are disposed toward the free end of the seat and directed generally
9 toward the mounting means.

1 18. A toilet as in claim 17 further characterized by
2 sealing means mounted on the undersurface of the seat and engagable with said rim
3 peripherally of the bowl opening to assure a fluid seal at the juncture of these chamber
4 defining components.

1 19. A toilet as in claim 17 further characterized in that
2 the means for pivotally mounting the seat comprise
3 a horizontal shaft disposed rearwardly of the bowl opening in spaced relation above
4 the horizontal rim,
5 a pair of laterally spaced supports mounted on said bowl,
6 a pair of brackets, secured to the lower portion of the seat and pivotally mounted on
7 opposite ends of the shaft, outboard of the supports,
8 means for supplying water including
9 an extension projecting from one of said brackets generally axially of said shaft,
10 a passageway extending lengthwise of said bracket extension,
11 a flexible tube secured at one end to said extension in fluid communication with the
12 lengthwise extending passageway and at its other end in communication with a supply of
13 pressurized water,
14 valve means mounted on said lower seat portion and having an open position in

15 which water flows to the nozzles and a closed position in which flow of water to the nozzles
16 is shut off, and
17 manually operable means, disposed at a rear lateral position relative to said seat, for
18 shifting said valve means between its open and closed positions.